REMARKS

Claims 10-14 and 18-20 are currently pending in the application. By virtue of this amendment, claims 10, 12-14, and 18 have been amended and new claims 19-20 have been added.

35 U.S.C. §112, First Paragraph rejection

Claims 10-14 and 17-18 stand rejected under 35 U.S.C. §112, first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the invention was filed, had possession of the claimed invention.

The Examiner maintains that the entire application is drawn to the advantages of a UV-sensitive system in combination with a laser ablatable layer, and that the original specification and claims do not disclose the generic ablation layer drawn to infrared ablation and infrared absorbing material with the exception of Example 3. The Examiner also maintains that there is no disclosure to a photosensitive element without the presence of a dopant having a high extinction coefficient in the ultraviolet radiation and that the broader "non-infrared actinic radiation" is not fully supported by the original disclosure and claims.

In response, Applicants have amended independent claim 10 to require the presence of an ultraviolet radiation absorbing material in the slip film layer instead of the infrared absorbing material. Support for this amendment can be found in the specification, for example at page 8, lines 2-26. Thus, Applicants respectfully submit that independent claim 10 is fully supported by the original disclosure and claims.

The Examiner also asserts that Example 3 demonstrates that a polyamide slip layer containing Uvinul^{TM} D-50 is not ablatable with a YAG laser and the CO_2 laser-

imaged material was also found to be a poor choice because of the poor resolution obtained indicating damage to the photopolymerizable layer.

Applicants are submitting concurrently herein a Declaration of Rustom Kanga (hereinafter the "Decl. of Kanga"), one of the named inventors of the instant application. The Decl. of Kanga reports that the issue of the unevenness of the plate surface in Example 3 is the subject of slight modification to laser power (¶8). The Decl. of Kanga and its accompanying Exhibits C to G demonstrate that Dr. Kanga did in fact carry out these minor modifications to laser power prior to the effective filing date of this application and produced excellent results. In addition, Dr. Kanga carried out experiments with minor modifications to the power of the YAG laser and again achieved excellent results. Applicants respectfully submit that the experiments conducted by Dr. Kanga show that YAG and CO_2 lasers can be optimized and used to produce a photosensitive element without damaging the underlying photopolymerizable layer. Applicants respectfully submit that Example 3 does in fact demonstrate that YAG and CO_2 lasers are usable in the invention and that the attached Decl. of Kanga shows that slight modifications to laser power in YAG and CO_2 laser systems can produce excellent results without damage to the photopolymerizable layer.

The Examiner also maintains that the only support for a layer that can be ablated by infrared laser radiation is found in Example 3, which is specific to a polyamide. In addition, the Examiner asserts that there is no generic disclosure for using an infrared ablatable layer with the Markush listing of binders.

Applicant respectfully disagrees. As discussed in the attached Decl. of Kanga and in the original disclosure, the slip film layer is clearly disclosed as comprising a material selected from the group consisting of polyacetals, polyacrylics, polyimides, polybutylenes, polycarbonates, polyesters, polyethylenes, polyethylene ethers, and polyamides. The original 1993 disclosure, page 11, line 32 through page 12, lines 3, attached to the Decl. of Kanga as Exhibit A, describes the various materials that are usable in the slip film layers of the invention.

While Applicants acknowledge that Example 3 is directed to a slip film layer comprising polyamide, the disclosure clearly provides for the use of other materials in the slip film layer. The invention cannot be reduced to the specific examples as suggested by the Examiner. Instead the application clearly discloses all of the claimed binders for use with lasers at a selected wavelength and power. The Decl. of Kanga clearly supports this conclusion.

Furthermore, the claims filed with the original disclosure of June 25, 1993 also provide support for the listing of binders set forth in the claims. See *In re Mott*, 190 U.S.P.Q. 536, 542 (CCPA 1976) ("Allowed claim 3, which was part of the application as originally filed and is thus available as original disclosure").

As is evidenced by Exhibit A to the Decl. of Kanga, originally filed claim 1, which form part of the original disclosure of the June 25, 1993 application, provides for:

> Claim 1: A protective layer for a photocurable article comprising
>
> a **polymeric matrix** and
>
> a **dopant** having a high extinction coefficient in the spectral output range of 300 to 400 nm, the layer responding to a threshold dosage of radiation at a **selected wavelength** by photobleaching of the dopant and photoablation of the polymeric matrix.

Thus, the original disclosure did not limit the binder (polymeric matrix) to a polyamide, as asserted by the Examiner. Furthermore, originally filed claims 10 and 11 describe a method of making **a laser imaged printing plate** with the same polymeric matrix and dopant. Claim 10 specifically provides for **ablating the UV absorber using a laser**. Claim 10 does not limit the type and/or wavelength of the laser. Furthermore, claim 7 recites a list of compounds from which the polymeric matrix may be selected.

The Examiner maintains that no species of the ablatable IR layers sought by applicants is supported by actual reduction to practice. Applicant respectfully disagrees. As discussed in the attached Decl. of Kanga, Example 3 clearly describes ablation imaging using lasers emitting in the IR range, specifically YAG and CO_2 lasers. This example clearly describes a photosensitive element comprising:

(1) a photopolymerizable layer (page 18, line 30) – the commercially available KOR photopolymer used in Example 3 comprises 1,6–hexanediol diacrylate and 1,6-hexanediol dimethacrylate as the monomers;

(2) a I.R. ablatable layer in direct contact with the photopolymerizable layer (page 15, lines 1-9 and page 18, line 31, through page 19, line 2) comprising:

(a) a UV absorbing material (page 15, line 9);

(b) a binder (i.e. Macromelt® 6900, a polyamide) (page 15, line 8);

wherein the I.R. ablatable layer is exposed to and ablated by an I.R. laser (i.e. a CO_2 laser).

Example 3 concludes with the following sentence:

"Thus, it was seen that the basic idea of the laser-imaged printing plate was demonstrated..."

In addition Table II (1993 patent application, page 20) clearly reports successful results. Although runs 2, 5 and 6 in Table II report that not enough ablation was achieved, the result achieved was workable and could easily be optimized by adjusting the power of the laser. Furthermore, runs 8 and 12 reported full ablation and, particularly run 12, a completely workable result. The attached Decl. or Kanga addresses the issue of the unevenness of the plate surface.

In his Declaration, Dr. Kanga reports that the issue of unevenness of the plate surface is the subject of mere slight modification to the laser power. Dr. Kanga was able to carry out the minor modifications to the laser power and produced excellent results.

The Examiner also maintains that there is no support for a photopolymerizable layer with both the materials of claim 12 and claim 13 present simultaneously.

In response, Applicants have amended claims 12 and 13 to more clearly define the invention. Namely, the claims have been amended to require a photopolymer selected from the group consisting of polyurethanes, acrylonitrile rubbers, and diblock and triblock copolymers made from styrene-isoprene and styrene-butadiene (claim 12) where the polyurethane of claim 12 is selected from the group consisting of acid-modified acrylate polyurethanes and amine-modified acrylate polyurethanes (claim 13).

35 U.S.C. §102(a) or (e) rejection

Claims 10-14 and 17-18 stand rejected under 35 U.S.C. §102 (a) or (e) as being anticipated by Fan (6,238,837) and optionally further evidenced by Toda et al. (4,045,231), Heinz et al. (4,430,417) and Chen (4,323,636). The Examiner maintains that the only support for instant claims 10-14 and 17-18 is the date of submission of the amendment (August 3, 2001) and that Fan is thus available as prior art where support was not found in the application as filed.

As discussed above, Applicants have amended claim 10 to require the presence of an ultraviolet radiation absorbing material in the ablation layer. Support for this change can be found in the specification, for example at page 8, lines 2-26. Support for the various binders that are usable in the ablation layer can be found in the specification, for example at page 11, lines 3-9 (original 1993 disclosure page 11, line 32 through page 12, line 3). In addition, the attached Decl. of Kanga clearly demonstrates that these binders are usable in compositions of the invention.

Accordingly, Applicants respectfully submit that all of the elements of independent claim 10 are supported by the specification, with an effective filing date of June 25, 1993 and that the Fan patent is therefore not available as prior art against the instant invention. Reconsideration and withdrawal of the rejection of claims 10-14 and 18 under 35 U.S.C. §102 (a) or (e) as being anticipated by Fan (6,238,837) and optionally further evidenced by Toda et al. (4,045,231), Heinz et al. (4,430,417) and Chen (4,323,636) is respectfully requested.

Insufficiency of Murphy Declaration

The Examiner maintains that the Declaration of Edward T. Murphy (hereinafter the "Decl. of Murphy") is insufficient to overcome the rejection of claims 10-14 and 17-18 based on 35 U.S.C. §112, first paragraph. The Examiner maintained her rejection based on the failure of the 1993 application to give sufficient written disclosure to support the sub generic species of IR ablatable layers as found in claims 10-14 and 17-18. In Examiner's opinion, the 1993 application showed that only one of two IR systems chosen worked and that the one that worked didn't work up to the standard set.

First, the Examiner disagreed with Mr. Murphy's interpretation of page 14, lines 18-20, wherein he Mr. Murphy asserted that the plate is usable as a printing surface (even if the ablation does damage the photopolymer just beneath). The Examiner maintained that this addition to the disclosure is opinion as to what is meant by "without damage to the photopolymer just beneath." The Examiner interpreted the words of pages 19-20 (Example 3) to mean that the sealed CO_2 laser ablation experiments did not meet the standard of page 14 that the photopolymer just beneath remain "without damage." However, it is the Examiner's position in this regard that is unsupported opinion. This cannot stand in view of the declarations submitted.

In response, Applicants are submitted herein the Decl. of Kanga, in support of features of the claimed invention. As reported in the Decl. of Kanga, Table II (1993 patent application, page 20) reports successful results. Although runs 2, 5 and 6 in Table

II report that not enough ablation was achieved, the result achieved was workable and could easily be optimized by adjusting the power of the laser. Further runs 8 and 12 reported full ablation and, particularly run 12, a completely workable result. The issue of unevenness of the plate surface is the subject of mere slight modification to the laser power.

Dr. Kanga did in fact carry out the minor modifications to the laser power prior to the effective filing date of this application and produced excellent results as described in Exhibits C to G. Further, with minor modifications to the power of the YAG laser, excellent results were also achieved as noted in the above-described Exhibits.

Second, the Examiner disagreed with Mr. Murphy's assertion that as one of skill in the art that the 1993 application experiments indicate a preference for IR lasers as well as UV lasers. The Examiner also believed that the IR laser systems in Example 3 do not meet the requirement of page 14 of the 1993 application, i.e., the wavelength and power should be such that the laser treatment can ablate the slip film without damage to the photopolymer just beneath, finding that this standard is much higher than that the imaged plate can be used as a printing plate. The Examiner believed Mr. Murphy's allegation that the IR laser is preferred in view of the 1993 application to be in error.

As discussed in the attached Decl. of Kanga, the June 1993 patent application indicates, for example, at page 14, lines 15 to 20, that the wavelength of the laser used for ablation must be such that the laser treatment ablates the ablatable layer without extensively damaging the photopolymer to an extent that it cannot subsequently be used as a printing surface. In addition, Applicants believe that the Decl. of Kanga and its accompanying Exhibits demonstrates that unevenness of the plate surface is the subject of slight modification to laser power and an issue of mere optimization not of operability. As noted in his Declaration and accompanying Exhibits, Dr. Kanga carried out the minor modifications to laser power and produced excellent results.

Third, the Examiner maintains that Mr. Murphy does not offer any outside evidence other than his statement that workers in the art in 1993 would have recognized that the YAG laser reported as "essentially noneffective" would ablate the slip layer as designed by applicants of the 1993 application because there is no other evidence given to overcome this direct statement. The Examiner does not believe that Mr. Murphy's allegation is sufficient to overcome the "non-working" example disclosed without further facts to support his statement.

In response, Applicants have submitted the Decl. of Kanga and accompanying Exhibits C through G, which Applicants believe addresses the issues raised by the Examiner. As one of the co-inventors of the instant application, Dr. Kanga is clearly a person of skill in the art. Furthermore, Exhibits C through G contain laboratory notebook pages detailing experiments performed as a basis for the patent of the instant invention. Applicants respectfully submit that the Decl. of Kanga and its accompanying Exhibits is sufficient to demonstrate that workers skilled in the art in 1993 would have recognized that infrared lasers, including YAG and CO_2 lasers would be usable to ablate the slip film layer of Applicants' invention.

Fourth, the Examiner maintains that that there is little guidance to workers of ordinary skill in the art in 1993 as to what binders would possibly meet the standard of ablating the slip film without damage to the photopolymer just beneath with IR lasers, because the only guidance is in Example 3 and that is to a system that is imageable but damaged. The Examiner believed that Mr. Murphy did not give any evidence other than his allegation that the binders that must contain the UV absorber are the same binders that would be of use in IR ablatable layers wherein no such dopant is required.

As discussed above, Applicants have amended the claims to specifically require the presence of an ultraviolet radiation absorbing material in place of the infrared absorbing material. Furthermore, as discussed in more detail above, the attached Decl. of Kanga specifically shows that the June 1993 parent application describes the invention as comprising doping a slip film layer with an ultraviolet radiation absorber and then

ablating the layer with a laser at a selected power and wavelength to create an in situ mask (see page 14, lines 15-20). The slip film layer is disclosed as comprising a material selected from the group consisting of polyacetals, polyacrylics, polyimides, polybutylenes, polycarbonates, polyesters, polyethylenes, polyphenylene ethers, polyethylene oxides and polyamides. (see page 11, line 32, through page 12, line 3).

Fifth, the Examiner maintains that Mr. Murphy does not address the issue of photopolymerizable layers being other than UV polymerizable or whether the UV absorber would be recognized by workers of skill in the art to be necessary or not. The Examiner maintains that there is no evidence given to remove the issue of missing limitations to UV absorbers and UV imageable photopolymerizable layers.

As discussed above, Applicants have amended independent claim 10 to require the presence of an ultraviolet radiation absorber.

Insufficiency of Applicant's Arguments

The Examiner maintains that the 1993 application does not show a single IR ablatable system that meets the requirements of the general system described in the 1993 application. The Examiner further maintains that Example 3 of the 1993 application shows neither IR laser in the system given works with respect to the general requirement of the laser needed to make Applicant's invention work.

Applicant respectfully disagrees. As discussed above and in the attached Decl. of Kanga and its accompanying exhibits, Dr. Kanga reports that the issue of unevenness of the plate surface is the subject of slight modification to the laser power. Dr. Kanga carried out the minor modifications to the laser power and produced excellent results.

The Examiner maintains that Example 3 of the 1993 application shows the unpredictability of the art when it shows that IR lasers do not come up to standard for Applicant's system and that the 1993 application addresses not only the ability of the

ablatable layer to be ablated but also the fragility of the layer beneath and how just more laser power is not enough to get a system that does not damage the layer beneath.

As discussed above and in the attached Decl. of Kanga the issue of unevenness of the plate surface is the subject of mere slight modification to the laser power. Dr. Kanga was able to carry out the minor modifications to the laser power and produced excellent results using both YAG and CO_2 lasers.

The Examiner maintains that Applicants have not submitted sufficient facts to show workers of ordinary skill in the art in 1993 would have found a combination of UV polymerizable layer and IR ablatable layer that did work without hit and miss testing of multiple combinations of layers in the art.

As discussed Applicants have amended independent claim 10 to require the presence of an ultraviolet radiation absorber. The Decl. of Kanga clearly demonstrates that the subject claims are enabled.

Furthermore, UV photopolymerizable layers and slip films are well known in the prior art. As discussed on page 3, lines 3-13 of the 1993 patent application, a typical flexographic printing plate comprises a backing, an unexposed photocurable layer, a protective layer, and a cover sheet. The photocurable layer can be formulated from any of a wide variety of known photopolymers, initiators, reactive diluents, fillers, etc.

35 U.S.C. §103 Rejection

Claim 10 stands rejected under 35 U.S.C. §103 as being unpatentable over Scott Paper Company in view of the Murphy Declaration and further in view of Law et al. In view of the amended claims, the applicant believes that this rejection has been mooted.

Conclusion

Applicant believes that the foregoing is a complete response to all of the objections and rejections raised by the Examiner and that the claims of the instant application are now in condition for allowance. Accordingly, an indication of allowability and an early Notice of Allowance is respectfully requested.

If the Examiner feels that a telephonic interview would be helpful, she is requested to contact the undersigned at (203) 575-2648.

Respectfully Submitted,

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